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Government in the field of, 1952/53
HOUSE OF COMMONS

Seventh Session—Twenty-first Parliament
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SPECIAL COMMITTEE

on the
Operations of the Government
in the field of

ATOMIC ENERGY

Chairman: G. J. McILRAITH, Esq.

MINUTES OF PROCEEDINGS AND EVIDENCE

No. 6

[and
reports]

TUESDAY, APRIL 14, 1953

WITNESS:

Dr. A. H. Lang, Chief of the Radioactive Resources Division, Geological
Survey of Canada, Department of Mines and Technical Surveys.

MINUTES OF PROCEEDINGS

TUESDAY, April 14, 1953.

The Special Committee appointed to examine into the operations of the Government in the field of Atomic Energy met at 4.00 o'clock p.m. The Chairman, Mr. G. J. McIlraith, presided.

Members present: Messrs. Bourget, Brooks, Green, Kirk (*Digby-Yarmouth*), McCusker, McIlraith, Murray (*Oxford*), Stuart (*Charlotte*), and Winkler.—(9).

In attendance: Dr. A. H. Lang, Chief of the Radioactive Resources Division of the Geological Survey of Canada, Department of Mines and Technical Surveys.

The two documents tabled by the Chairman on April 8 were distributed to members present.

Dr. Lang was called. He gave detailed evidence on the special activities of the Radioactive Resources Division of the Geological Survey of Canada in the field of atomic energy and was questioned thereon.

Dr. Lang also tabled a pamphlet, "URANIUM IN CANADA IN 1952—PRELIMINARY", for later distribution to members of the Committee.

The witness retired.

At the conclusion of today's evidence, the Committee viewed lantern slides, with commentaries by Dr. Lang and Mr. Bennett, respectively portraying:

1. Types and distribution of Canadian uranium deposits and tables showing their statistics; also, diagrams and views illustrating some of the principal uranium mines in Canada.
2. Transportation and construction activities of the Northern Transportation Company Limited and Eldorado Mining and Refining Limited in respect of operations at Great Bear Lake and Beaverlodge, Saskatchewan.

The Committee agreed that no further evidence would be taken from witnesses for the record. Following a discussion on proposed visits, the Committee also agreed to limit itself to an inspection visit to the laboratories of the Mines Branch and the Geological Survey of Canada, Department of Mines and Technical Surveys, on a date to be arranged by the Chairman.

The Chairman reminded members of the Committee present of tonight's feature film, "The Highway of the Atom", to be shown by the National Film Board in the Railway Committee Room, portraying in colour the operations of the Northern Transportation Company Limited in the Mackenzie River watershed with particular reference to the launching of the vessel *Radium Franklin* and its maiden voyage from Waterways in Alberta to the Bear River in the Northwest Territories. (Produced by Crawley Films for Eldorado Mining and Refining Limited).

At 6.20 o'clock p.m., the Committee adjourned to the call of the Chair.

A. SMALL,
Clerk of the Committee.

EVIDENCE

APRIL 14, 1953.

4.00 p.m.

The CHAIRMAN: Gentlemen, if you will come to order, the clerk will distribute the two papers "Recovery of Uranium from Canadian Ores" and "The Function of the Mines Branch Radioactivity Division" to which I referred at the last meeting—the technical papers—and I will call on Dr. A. H. Lang of the Radioactive Resources Division of the Geological Survey of Canada to complete the evidence on the Geological Survey. I propose at the conclusion of his evidence to ask him to show us some slides of the types of deposits and their distribution in Canada, and then call upon Mr. Bennett to show slides on the Eldorado operations. If that meets with your approval, I will call on Dr. Lang.

Dr. A. H. Lang, Chief of Radioactive Resources Division, Geological Survey of Canada, Department of Mines and Technical Surveys, called:

The WITNESS: Mr. Chairman and gentlemen: At the last meeting Dr. Bell, Director of the Geological Survey, outlined the general work of the Survey related to uranium, and he mentioned that we had parties making geological maps and reports of areas that were known to be favourable or might be favourable for uranium. He also mentioned that the Survey had set up a special division to do special types of work and it is about that work that I would like to speak briefly today.

The Radioactive Resources Division had its beginning in 1948 when private prospecting and mining for uranium was permitted. Its work has mainly to do with special research on the origin and distribution of uranium deposits in Canada, to keep track of the resources, and to act as the official agent of the Atomic Energy Control Board in matters dealing with private prospectors and mining companies.

I will describe that work briefly under four headings: Field Work, Laboratory Work, Office Work, and Publications.

Field Work

Geologists of the division examine as many deposits as possible each year, trying to go to the main new discoveries and the properties with the most active development work; but as we have never had more than two geologists for that work we can now only go to a very small fraction of the discoveries and properties each year.

When we began in 1948 there were about thirty properties in Canada; most of those were old ones that had been known for years and were not considered to be of much value. At the end of 1952 there were 645 properties, and we have about the same staff now for field work as we had originally; so we can only skim the cream off now. When we examine these properties we try to study their origin, and the kinds of rocks and geological structures that are favourable, and we make generalizations that may be useful in prospecting and exploration work in general; and we also collect information for an inventory which I will mention in a moment.

We also have one mineralogist doing field work, making a special study of the mineralogy of the deposits of the Athabasca region. This has a useful

bearing from the point of view of the origin of the deposits and it also provides basic information useful to the Mines Branch if they do test work on the ores.

Laboratory Work

Our laboratories include a laboratory for making radiometric assays. We make these assays free of charge on samples sent in by the public, and also on samples that are collected by our field men. Results are almost always mailed to the public within 24 hours of receipt of sample.

A few years ago we made as many tests as people wanted to ask for, as long as they were for properties in early stages of exploration, but as the method for making these tests became published and many of the private assaying firms in Canada are now able to do that work, they made representations to us that we were competing unfairly in making these free tests, so we limited the number of tests to six. They would have preferred us to cease making them entirely, but we felt it was essential to make some in order to encourage new discoveries and help people who could not afford to pay for the tests. So we now limit the number to six from any one discovery or property. A few years ago when we were making as many tests as were requested, we made up to about 8,000 a year. Last year it ran to a little over 3,000 partly because of the limit in the number for any one sender and partly because prospectors are learning more about the deposits and are not sending in as many worthless samples.

We also make free mineral determinations to help the prospectors to know what the mineral is, because as I will explain later in the talk accompanying the lantern slides, there are many types of minerals and some of them are much more favourable than others; so it is desirable to have accurate methods of identifying them. We have laboratories for making microscopic studies of minerals and ores, X-ray tests and spectrographic tests. We have a small chemical laboratory and we are now equipping a mass-spectrometer laboratory which will make accurate determinations of the age of the deposits which should help in determining which rocks are most favourable.

Office Work

Our office work serves two main purposes: First, as agent for the Atomic Energy Control Board, we receive and compile reports of all discoveries showing 0.05 per cent uranium or thorium oxide or more. Also, there are now 131 individuals and companies operating under exploration orders from the Board and they are required to send detailed monthly reports on their operations; these are sent directly to us. We file them. Our geologists collate this information and boil it down into short resumés which go into what is called the confidential inventory of "Canadian Deposits of Uranium and Thorium," which is brought up to date annually. One set of that inventory now comprises nine volumes, and it contains a short up-to-date description of each of the 645 properties; as the number has increased, of course, the work of receiving that information and collating it has increased enormously.

I think I might mention that one possibility I have in mind is to suggest to the Board that perhaps monthly reports are no longer needed. Actually it has been seldom that monthly reports were required, and if the property owners made one report every six months or one every year it would take much less filing and office work; but that is a matter for the Board to decide. Certainly, when we began this work five years ago, we had no idea there would be 645 properties to deal with.

Secondly, we get an enormous number of inquiries from the public, not only from Canada but from all parts of the world—people who want to come to Canada to prospect, companies that want to get into the uranium business, and persons desiring geological information about uranium. They ask such questions as where to prospect and what kind of Geiger counters to use. I

might mention that we contribute to the development and testing of new types of Geiger counters for field work, and we are able to advise prospectors and companies which types are most suitable for a particular purpose. Much of my time is taken up in dealing with visitors and phone calls and letters. At present we are flooded with letters and requests from people in the United States who want to come to Canada to prospect for uranium.

Publications

The other day Dr. Bell tabled a paper having to do with general publications of my division. One was a handbook on "Prospecting for Uranium in Canada", one was a detailed interim report on "Canadian Deposits of Uranium and Thorium", and there was a third paper called "Uranium Orebodies—How Can More be Found in Canada?" If I may, sir, I would like to table this pamphlet "Uranium in Canada in 1952—Preliminary" which came out today. The Department publishes annual reviews on gold and copper and so on, and later they are printed and bound in a report called "Canadian Mineral Industry for 1952," etc. This year I contributed a review on uranium. I think it would be of interest as an up-to-date summary of the activities.

The CHAIRMAN: This report "Uranium in Canada in 1952—Preliminary" will be tabled and copies distributed later to members.

The WITNESS: There are other publications that were not tabled. This one (*indicating*) is the French edition of the prospecting handbook. This one (*indicating*) is a special report on certain pegmatite deposits in the Wilberforce district of Ontario. We also have mimeographed pamphlets on "The Economics of Radioactive Pegmatites in Canada"; "Prices and Markets for Thorium and Rare Earths"; a list of dealers who sell Geiger counters; and several more technical publications that are of interest to geologists in their work on uranium. Also, we are frequently asked to give lectures at mining conventions and prospectors' conventions in Canada and the United States. We do what we can but we cannot begin to fill all the requests for such kinds of engagements. The staff of my division consists of only twelve persons including clerks, stenographers, and laboratory technicians; and our greatest problem now is to find staff and to find quarters to keep up with the tremendous increase in activity in uranium.

I would suggest that if there are any questions dealing with administration or other matters I have discussed, that it might be well to take them up now; and then it has been suggested that I take a little time to discuss more technical matters with slides.

By Mr. Stuart:

Q. You mentioned more Americans were interested in coming to Canada to explore for uranium?—A. Yes.

Q. Would they come under the same regulations that Canadian prospectors would? The board would still have complete control over any find or deposit?—A. Yes. An American citizen may stake a claim, just as for gold or copper. For uranium, he would be under the same control as is exercised over a Canadian.

By Mr. Green:

Q. Are any of these prospects approaching the point where they would be in production? I ask that question because I was amazed to hear Mr. Bennett say the other day the only properties actually producing uranium ore were the two at Eldorado.—A. Yes. I could answer that better perhaps after I have shown some of the slides that have diagrams. But, to give it briefly now, there is one privately-owned property in the Northwest Territories which announced

it had got into production by the end of last year, but it is on a small scale, and when Mr. Bennett said there were no private producers, I think he meant the ore is still stockpiled; it has not been delivered to Eldorado as yet. There are several small properties in the Beaverlodge region of Saskatchewan which will almost certainly ship ore to the Eldorado plant when it is in operation this year. There are also probably two in the Beaverlodge region that appear now to have a good chance of having enough ore to warrant their having their own plants; I think there may be others in time, but it generally requires several years to establish enough ore to assure that a mine would warrant a treatment plant, and it costs money.

Q. Is there any market for a uranium claim?—A. Yes. Some of the claims that were staked last summer were sold at \$1,000, and they did not necessarily have discoveries on them; they were known to be in a favourable place. The Saskatchewan government had a concession system until last summer and then they were thrown open. The people who had concessions were able to stake a certain amount as claims and the balance was left open.

By Mr. Brooks:

Q. Does the provincial government get any royalty from them?—A. Yes. Just the same as from copper or iron or anything else. It depends on the profits of the company. That is how they get their revenue from mining, by a royalty on profits.

Q. Do their departments of Lands and Mines assist in any of your work?—A. Some provincial governments have geologists and mining engineers examining properties and we work closely with them. We often exchange non-confidential information.

By Mr. Green:

Q. Why is there such a rush of prospectors when there does not appear to be a great deal of money in the business?—A. I think there is money in the business. In any kind of mining, it is well known among professional mining people that less than 1 per cent of discoveries become producing mines, but that has not prevented important mining industries in Canada. However, many persons seem to think that all they have to do is buy a Geiger counter, find some uranium, and the world will beat a path to their doors. Actually, there will probably be a smaller proportion of successful uranium finds than of other metals because it tends to be dispersed and to form many small or low-grade deposits. Also, the Geiger counter allows one to sniff out small occurrences that might not be found if they contained a non-radioactive metal. However, the rewards from a successful discovery should well balance the situation. Exploration should be done as a process of elimination, and too much should not be spent in exploring the poorer prospects.

By Mr. McCusker:

Q. How many claims may an individual file?—A. It varies in different provinces. In some, six claims may be staked in one mining division, but one can also hold proxies.

By Mr. Green:

Q. Uranium is considered for staking in just the same way as lead or gold?—A. Yes, but in addition, the regulations of the Board require notification of discoveries and so on, and the Government controls the finished product.

The CHAIRMAN: Any additional questions, gentlemen?

By Mr. McCusker:

Q. You referred to concessions by the provincial government. Was that for individuals or mining companies?—A. For either.

Q. Was it a fee or a rental?—A. I cannot recall the details. I think there was an original fee and an annual fee; and, if the holder spent enough on exploration, he was allowed to hold a part of the ground as claims after the concession expired. That was just in Saskatchewan, and they all expired last summer, after which there was a staking rush.

Q. Is the information submitted by an individual prospector or company, relative to their property, made public, or is that retained within the department?—A. We keep it confidential as long as they wish. A great deal of our work is confidential, but very little for security reasons. There are a few matters, such as production figures, which are security secrets; but most of our information is confidential for business reasons, and we protect the individuals and companies to the limit. However, we try to publish as much as possible. When I brought this out I had to write 300 registered letters to discoverers or property owners to seek authorization of their particular parts. About 5 per cent declined.

The CHAIRMAN: The book Dr. Lang referred to was "Canadian Deposits of Uranium and Thorium".

By Mr. McCusker:

Q. The reason I made this inquiry was that a few years ago, when these concessions were let in Saskatchewan, certain charges were levelled that individuals, on account of the position they held, had obtained information that enabled them to take unfair advantage. Now, what I want to know is, is this information filed with the Department of Mines in the provinces as well?—A. Some of the provinces have provision for collecting information as well. I think you may be referring, not to the reporting of discoveries, but to the fact that geological maps had been made which showed what was thought to be the more suitable sections, and if a person had access to the maps he would know what concessions were most favourable. Some of these maps were published and some were in the process of publication. I know at the time we had requests for advance copies, and we just said we would put their name on the mailing list, and mail them when they were released. We always lean over backwards to prevent leakage of advance information.

Q. I was not referring to anything which occurred in your department. I think you know what I was referring to.

The CHAIRMAN: If there are no more questions, perhaps we can conclude this part of the evidence now. Is it agreed that this terminates our evidence?

Mr. GREEN: Is Dr. Mackenzie coming back?

The CHAIRMAN: Well, do we want him back? Is there any further evidence you wish him to give?

Mr. GREEN: I asked him about Eldorado, and the Northern Transportation Company and Atomic Energy of Canada Limited.

The CHAIRMAN: We are going to be in difficulty about that. I do not know whether you wish to press it, but we do not want to give detailed information.

Mr. GREEN: We could take it up at another meeting.

The CHAIRMAN: I do not know what your idea is about calling additional meetings. I am quite prepared to go on with more meetings, but it is getting to the point where we will obviously have to conclude the evidence. I do not know what your idea is. Do you want to keep it open?

Mr. BROOKS: Have you abandoned the idea of making a visit to Montreal?

The CHAIRMAN: It is still open. We have never really dealt with it. However, I do not see how it is possible to go to Montreal at this stage.

Mr. BROOKS: Dr. Mackenzie suggested we would not see very much.

The CHAIRMAN: I had some further discussion on that, and the impression I got was that it was not going to be as satisfactory as we might wish, or as beneficial as we might wish. I do not know whether you wish to leave the question of additional meetings open or decide it at this point.

Mr. McCUSKER: May we decide it at the close of this meeting before we adjourn?

The CHAIRMAN: That will be all right. If there are no further questions, we can now proceed with the slides.

(For an account of proceedings conducted following the showing of the slides, see today's "Minutes of Proceedings").

